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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,151	12/08/2003	Kia Silverbrook	ZF189US	1019
24011 7590 05/14/2007 SILVERBROOK RESEARCH PTY LTD 393 DARLING STREET BALMAIN, 2041 AUSTRALIA			EXAMINER YE, LIN	
			ART UNIT 2622	PAPER NUMBER
			MAIL DATE 05/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/729,151	<b>Applicant(s)</b> SILVERBROOK, KIA	
	<b>Examiner</b> Lin Ye	<b>Art Unit</b> 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09112774.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt U.S. Patent 6,278,481 in view of Roberts U.S. Patent 5,541,654.

Referring to claim 1, the Schmidt reference discloses in Figures 2-6, an image capture and processing integrated circuit (300 in Figure 3, 400 in Figure 4 or 500 in Figure 5) comprising: an image sensor (CCD 405 or CMOS 505 imager, see Col. 5, lines 1-21); an analogue-to-digital converter (ADC's) (315 in Figure 3, 430 in Figure 400 or 530 in Figure 5, see Col. 5, lines 60-65 and Col. 10, lines 45-48) that are connected to the image sensor to convert analogue signals generated by the image sensor into digital signals; image processing circuitry (340 in Figure 3, or 605 in Figure 6, see Col. 5, lines 58-61 and Col. 10, lines 60-65 that is connected to the ADC's to carry out image processing operations on the digital signals, and a print head interface (e.g., output circuit 330 is a standard interface, such as an RS-232) that is connected to the image processing circuitry to receive data from the image processing circuitry and to format that data for a printhead (See Col. 2, lines 22-26 and Col. 5, lines 57-67 and Col. 8, lines 1-8). However, the Schmidt reference does not explicitly show the ADC

(430 or 530) includes a plurality of ADC in the image capture and processing integrated circuit.

The Roberts reference teaches in Figures 1 and 6, an image capture and processing integrated circuit (10) comprising: a plurality of analogue-to-digital converters (ADC's) (Four ADCs 166) that are connect to a image sensor to convert analogue signals generated by the image sensor into digital signals (See Col. 9, lines 47-67). The Roberts reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image capture and processing integrated circuit having more flexible design options and including a plurality of analogue-to-digital converters (ADC's) that are connected to a image sensor so that the desired speed of accessing image information from the pixels of the image sensor can be obtained easily. For that reason, it would have been obvious to the one of ordinary skill in the art at the time to modify the image capture and processing integrated circuit of Schmidt ('481) for providing a plurality of ADC in the image capture and processing integrated circuit as taught by Roberts ('654).

Referring to claim 2, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which includes a memory device (325 in Figure 3 or 525 in Figure 5) that is interposed between the image sensor integrated circuit and the image processing circuitry to store data relating to an image sensed by the image sensor integrated circuit (See Col. 5, lines 44-47 and Col. 10, lines 40-48).

Referring to claim 3, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses in which the image

sensor integrated circuit defines a CMOS active pixel sensor array as shown in Figure 5 (See Col. 10, lines 26-39).

Referring to claim 4, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which the image sensor integrated circuit incorporates a plurality of analog signal processors that are configured to carry out enhancement processes on analog signals generated by the active pixel sensor array (e.g., such as CDS and AGC circuits as shown in Figure 4).

Referring to claim 5, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which the image processing circuitry includes color interpolation circuitry to interpolate (any techniques are well known in the computer graphics art, such as perform different color translations or interpolation of the pixel data) pixel data (See Col. 6, lines 36-43 and Col. 9, lines 55-65).

Referring to claim 6, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses in which the image processing circuitry includes convolver circuitry that is configured to apply a convolution process (image sharpening process) to the image data (See Col. 5, lines 61-65).

Referring to claim 8, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses which is a single integrated circuit as shown in Figure 5 (e.g., CMOS integrated circuit, see Col. 5, lines 15-21).

Referring to claim 9, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, and the Schmidt reference discloses a camera system

which includes an image capture and processing device (300 in Figure 3, 400 in Figure 4 or 500 in Figure 5) as shown in Figures 2-6.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt U.S. Patent 6,278,481 in view of Roberts U.S. Patent 5,541,654 and Bagchi et al. U.S. Patent 5,916,358.

Referring to claim 7, the Schmidt and Robert references disclose all subject matter as discussed in respected to claim 1, except that the Schmidt reference does not explicitly discloses the print head interface (output circuit 330) is configured to format the data correctly for a pagewidth printhead.

The Bagchi reference discloses in Figures 6 and 24, a image source (52) or CCD camera (633) connected to a Data phasing system (55 as print head interface, see Col. 31, lines 34-37) which configured to format the data correctly for a page width printhead (50) (See Col. 31, lines 1-22, Col. 7, 45-50, Col. 23, lines 30-38 and Col. 44, lines 47-52). The Bagchi reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image capture and processing integrated circuit having the print head interface configured to format the data correctly for a pagewidth printhead so that significantly increase the speed of printing paper. For that reason, it would have been obvious to the one of ordinary skill in the art at the time to modify the image capture and processing integrated circuit of Schmidt ('481) for providing the print head interface (output circuit 330) is configured to format the data correctly for a pagewidth printhead as taught by Bagchi ('358).

### ***Conclusion***

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (571) 272-7372. The examiner can normally be reached on Mon-Fri 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Lin Ye  
Primary Examiner  
Art Unit 2622

May 4, 2007